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(12) United States Patent

De Juan, Jr. et al.

(54) INTRAOCULAR, ACCOMMODATING LENS AND METHODS OF USE

(75) Inventors: Eugene De Juan, Jr., San Francisco, CA

(US); Stephen Boyd, Murrieta, CA (US); Hanson Gifford, Woodside, CA (US); Cary Reich, Los Gatos, CA (US)

(73) Assignee: Forsight Labs, LLC, Menlo Park, CA

(US)

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(56) References Cited

U.S. PATENT DOCUMENTS

4,409,691 A 10/1983 Levy 4,731,078 A 3/1988 Stoy et al. 4,782,820 A 11/1988 Woods

(10) Patent No.: US 8,414,646 B2 (45) Date of Patent: Apr. 9, 2013

4.806.287 A	2/1989	Sulc
4,842,601 A	6/1989	
4,888,012 A	12/1989	Horn
4,893,918 A	1/1990	Sulc
4,932,966 A	6/1990	Christie et al.
4,957,505 A	9/1990	McDonald
	(Continued)	

FOREIGN PATENT DOCUMENTS

EP	1932492	6/2008
WO	03/000154	1/2003
	(Continued)	

OTHER PUBLICATIONS

Angew Chem Int. Ed. 41(12): 1973-2208 (2002).

(Continued)

Primary Examiner — David H Willse
Assistant Examiner — Tiffany Shipmon
(74) Attorney, Agent, or Firm — Fred C. Hernandez; Mintz
Levin Cohn Ferris Glovsky and Popeo, P.C.

(57) ABSTRACT

An intraocular lens is adapted for insertion into a capsular bag having a zonular contact region. The intraocular lens comprises a shape changing optical element and an accommodating element comprising at least one force transmitting element and a plurality of spaced apart contacting elements each adapted to contact a portion of the zonular contact region and transmit compressive displacement radially inward at an oblique angle to the optical element and configured to cooperate with at least one of the ciliary muscle of the mammalian eye, the zonules of the mammalian eye and the vitreous pressure in the eye to effect an accommodating shape and a disaccommodating shape change to the optical element.

18 Claims, 11 Drawing Sheets

